

CLAIM AMENDMENTS

Claim Amendment Summary

Claims pending

- Before this Amendment: Claims 1-46.
- After this Amendment: Claims 1-42 and 45-46.

Non-Elected, Canceled, or Withdrawn claims: 43-44.

Amended claims: 10 and 29.

New claims: none.

Claims:

1. (ORIGINAL) A kernel emulator for non-native program modules, the emulator comprising:

an interceptor configured to intercept kernel calls from non-native program modules;

a call-converter configured to convert non-native kernel calls intercepted by the interceptor into native kernel calls.

2. (ORIGINAL) An emulator as recited in claim 1, wherein the call-converter comprises a translator configured to translate a non-native paradigm for passing parameters into a native paradigm for passing parameters.

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1 3. (ORIGINAL) An emulator as recited in claim 1, wherein the
2 call-converter comprises a translator configured to translate non-native CPU
3 instructions into native CPU instructions.

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5 4. (ORIGINAL) An emulator as recited in claim 1, wherein the
6 call-converter comprises a translator configured to translate addresses from non-
7 native length into native length.

8
9 5. (ORIGINAL) An emulator as recited in claim 1, wherein the
10 call-converter comprises an argument-converter configured to convert non-native
11 argument format into native argument format.

12
13 6. (ORIGINAL) An emulator as recited in claim 1, wherein the
14 call-converter comprises a translator configured to translate words from non-
15 native word size into native word size.

16
17 7. (ORIGINAL) An emulator as recited in claim 1 further
18 comprising a memory constrainer configured to limit addressable memory to a
19 range addressable by non-native program modules.

20
21 8. (ORIGINAL) An emulator as recited in claim 1 further
22 comprising a shared-memory manager configured to manage memory space that is
23 accessible to both native and non-native program modules.
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1 9. (ORIGINAL) An emulator as recited in claim 1 further
2 comprising a shared-memory manager configured to synchronize a native shared
3 data structure with a non-native shared data structure.

4
5 10. (CURRENTLY AMENDED) An emulator as recited in claim 1
6 further comprising a shared-memory manager configured to manage memory
7 space that is accessible to both native and non-native program modules, wherein
8 the shared-memory manager maps versions of process shared data structures
9 (process SDSs) and versions of thread shared data structures (thread SDSs)
10 between native and non-native program modules.

11
12 11. (ORIGINAL) An operating system on a computer-readable
13 medium, comprising:
14 a native kernel configured to receive calls from native program modules;
15 a kernel emulator as recited in claim 1 configured to receive calls from non-
16 native program modules.

17
18 12. (ORIGINAL) An operating system on a computer-readable
19 medium, comprising:
20 a native kernel configured to receive calls from native APIs;
21 a kernel emulator as recited in claim 1 configured to receive calls from non-
22 native APIs.

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1 13. (ORIGINAL) A method of emulating a kernel for non-native
2 program modules, the method comprising:

3 intercepting kernel calls from non-native program modules;

4 converting the intercepted non-native kernel calls into native kernel calls.

5
6 14. (ORIGINAL) A method as recited in claim 13, wherein the
7 converting step comprises translating a non-native paradigm for passing
8 parameters into a native paradigm for passing parameters.

9
10 15. (ORIGINAL) A method as recited in claim 13, wherein the
11 converting step comprises translating non-native CPU instructions into native
12 CPU instructions.

13
14 16. (ORIGINAL) A method as recited in claim 13, wherein the
15 converting step comprises translating addresses from non-native length into native
16 length.

17
18 17. (ORIGINAL) A method as recited in claim 13, wherein the
19 converting step comprises translating words from non-native word size into native
20 word size.

21
22 18. (ORIGINAL) A method as recited in claim 13 further
23 comprising limiting addressable memory to a range addressable by non-native
24 program modules.

1 19. (ORIGINAL) A method as recited in claim 13 further
2 comprising synchronizing a native shared data structure with a non-native shared
3 data structure.

4
5 20. (ORIGINAL) A method as recited in claim 13 further
6 comprising mapping versions of process shared data structures (SDSs) between
7 native and non-native program modules.

8
9 21. (ORIGINAL) A method as recited in claim 19, wherein a
10 process SDS of a native program module includes a pointer to a process SDS of a
11 non-native program module.

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13 22. (ORIGINAL) A method as recited in claim 19, wherein a
14 process SDS of a non-native program module includes a pointer to a process SDS
15 of a native program module.

16
17 23. (ORIGINAL) A method as recited in claim 13 further
18 comprising mapping versions of thread shared data structures (SDSs) data
19 structure between native and non-native program modules.

20
21 24. (ORIGINAL) A method as recited in claim 22, wherein a
22 thread SDS of a native program module includes a pointer to a thread SDS of a
23 non-native program module.

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1 **25. (ORIGINAL)** A method as recited in claim 22, wherein a
2 thread SDS of a non-native program module includes a pointer to a thread SDS of
3 a native program module.

4
5 **26. (ORIGINAL)** A computer comprising one or more computer-
6 readable media having computer-executable instructions that, when executed by
7 the computer, perform the method as recited in claim 13.

8
9 **27. (ORIGINAL)** A computer-readable medium having computer-
10 executable instructions that, when executed by a computer, performs the method
11 as recited in claim 13.

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13 **28. (ORIGINAL)** An operating system embodied on a computer-
14 readable medium having computer-executable instructions that, when executed by
15 a computer, performs the method as recited in claim 13.

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RESPONSE TO OFFICE ACTION DATED 11/30/2004

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atty: Kasey C. Tristie

1 **29. (CURRENTLY AMENDED)** A method comprising:
2 determining whether an initiating program module is a native or non-native;
3 if the initiating program is non-native:

4 limiting available memory to a range that is addressable by the non-
5 native program module, that range of addressable memory being less than
6 the available memory;

7 establishing non-native a version of a shared memory data structure
8 that may be synchronized with a native version of the same shared memory
9 data structure.

10
11 **30. (ORIGINAL)** A method as recited in claim 29 further
12 comprising:

13 intercepting kernel calls from the non-native program module;
14 converting the intercepted non-native kernel calls into native kernel calls.

15
16 **31. (ORIGINAL)** A method as recited in claim 29 further
17 comprising emulating a non-native kernel for which kernel calls from the non-
18 native program module are intended.

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atty: Kasey C. Christle

1 **32. (ORIGINAL)** A computer comprising one or more computer-
2 readable media having computer-executable instructions that, when executed by
3 the computer, perform the method as recited in claim 29.

4
5 **33. (ORIGINAL)** A computer-readable medium having computer-
6 executable instructions that, when executed by a computer, performs the method
7 as recited in claim 29.

8
9 **34. (ORIGINAL)** A method comprising emulating a non-native
10 kernel for a native computing platform so that kernel calls from non-native
11 applications are translated into calls to a native kernel.

12
13 **35. (ORIGINAL)** A method as recited in claim 34, wherein the
14 emulating step comprises:

15 translating non-native CPU instructions into native CPU instructions;

16 translating addresses from non-native length into native length;

17 limiting addressable memory to a range addressable by non-native program
18 modules.

19
20 **36. (ORIGINAL)** A method as recited in claim 35, wherein the
21 emulating step further comprises translating a non-native paradigm for passing
22 parameters into a native paradigm for passing parameters.

1 **37. (ORIGINAL)** A method as recited in claim 34, wherein the
2 converting step further comprises translating words from non-native word size into
3 native word size.

4
5 **38. (ORIGINAL)** A computer comprising one or more computer-
6 readable media having computer-executable instructions that, when executed by
7 the computer, perform the method as recited in claim 34.

8
9 **39. (ORIGINAL)** A computer-readable medium having computer-
10 executable instructions that, when executed by a computer, performs the method
11 as recited in claim 34.

12
13 **40. (ORIGINAL)** A kernel emulator configured to emulate a non-
14 native kernel for a native computing platform so that kernel calls from non-native
15 applications are translated into calls to a native kernel.

16
17 **41. (ORIGINAL)** An emulator as recited in claim 40, wherein the
18 emulator comprises:

19 an instruction-translator configured to translate non-native CPU
20 instructions into native CPU instructions;

21 an address-translator configured to translate addresses from non-native
22 length into native length;

23 an memory constrainer configured to limit addressable memory to a range
24 addressable by non-native program modules.

1 **42. (CURRENTLY AMENDED)** An operating system on a
2 computer-readable medium, comprising:

3 a native kernel configured to receive calls from native program modules;

4 a kernel emulator as recited in claim 40 configured to receive calls from
5 non-native program modules.

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7 **43. (CANCELED)**

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10 **44. (CANCELED)**

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13 **45. (ORIGINAL)** A kernel emulator for non-native program
14 modules, the emulator comprising:

15 an interceptor configured to intercept kernel calls from non-native program
16 modules;

17 a call-converter configured to convert non-native kernel calls intercepted by
18 the interceptor into native kernel calls, wherein the call-converter comprises:

19 an instruction-translator configured to translate non-native CPU
20 instructions into native CPU instructions;

21 an address-translator configured to translate addresses from non-
22 native length into native length.

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1 **46. (ORIGINAL)** An operating system on a computer-readable
2 medium, comprising:

3 a native kernel configured to receive calls from native program modules;

4 a kernel emulator as recited in claim 45 configured to receive calls from
5 non-native program modules.

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